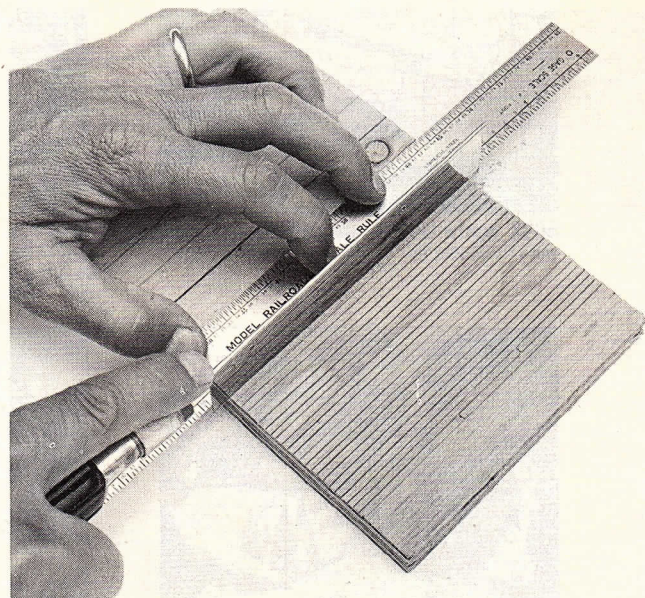


A simple technique for pouring plaster bridge abutments, wings, and piers

## Building better abutments

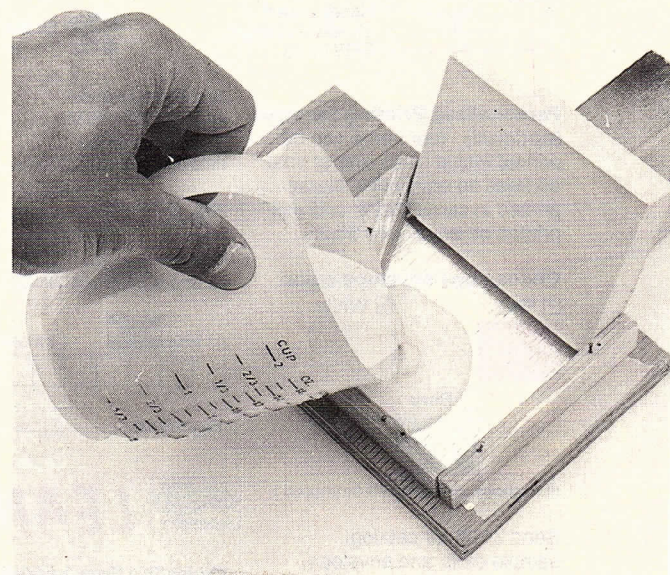


**BY ROBERT SMAUS**  
**PHOTOS BY THE AUTHOR**

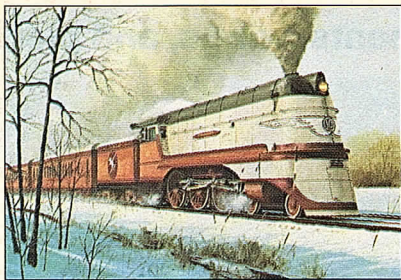
**A**FTER CAREFULLY ASSEMBLING several bridge kits, I wanted to make sure they sat on equally fine abutments, the winged type so common along the Southern Pacific right-of-way on my Los Angeles Division. I first thought of casting the front and wings as separate pieces and then fitting them together, but I've never been very good at miter cuts, so I developed the method shown here.

Briefly, here's the idea. After casting the front face of the abutment, I tilt it up in the same mold and, one after the other, I cast the wings onto it. Plaster bonds tightly to plaster if both pieces are damp.

To back up a little, I wanted the abutments to look as though they were cast about 1920, when the concrete was poured into forms made of individual boards. To get that look, I first cut grooves with a hobby knife into a piece of plywood. See fig. 1. These cuts would represent the concrete that oozed from



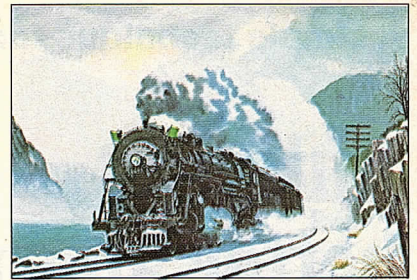




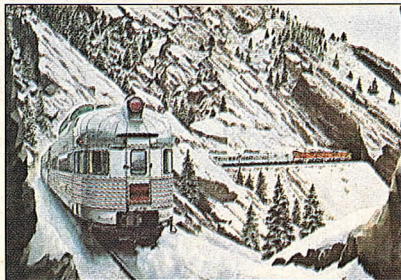
**5093 NORTH WOODS HIAWATHA** "Merry Christmas and a Happy New Year" —artist R.E. Pierce



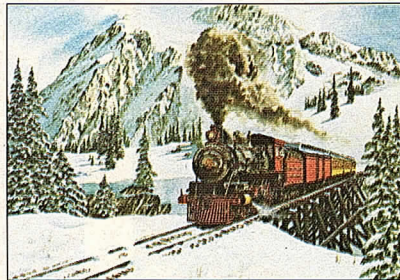
**5076 "Joy is the Spirit of Christmas—Peace is the Hope of the World"** "May the Peace and Happiness of the Christmas Season abide with you through all the Coming Year" —artist Jodie Boren



**5013 GREEN FLAGS FOR A CHRISTMAS RUN** "May the meaning of the Season be deeper, its friendships stronger and its hopes brighter as Christmas comes to you this year" —artist Howard Fogg



**5065 THE CALIFORNIA ZEPHYR** "With every good wish for Christmas and the New Year" —artist Howard Fogg



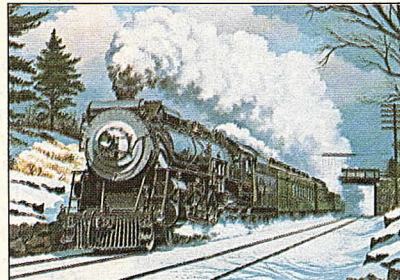
**5096 HOME FOR CHRISTMAS** "To those we love and see each day, and other loved ones far away, to all good friends whose friendship means so much, and those with whom we're somehow out of touch... Merry Christmas and Happy New Year!" —artist Jodie Boren



**5060** "To those we love and see each day and other loved ones far away, to all good friends whose friendship means so much and those with whom we're somehow out of touch... Merry Christmas and Happy New Year" —artist Carl J. Smith



**5082 BIG BOY IN ECHO CANYON** "Merry Christmas and a Happy New Year" —artist Howard Fogg

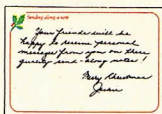


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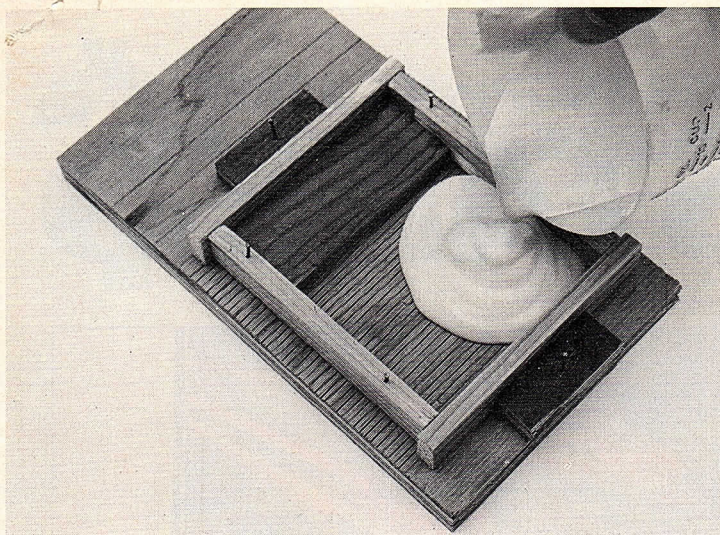
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**Fig. 1. Left.** Using a straightedge as a guide, make shallow cuts into a piece of plywood. These represent individual boards used in forms in the 1920s. A few crosswise cuts indicate board ends. **Fig. 2. Above.** The rest of the form is scrap wood tacked in place. The extra piece inside is for a ledge for the

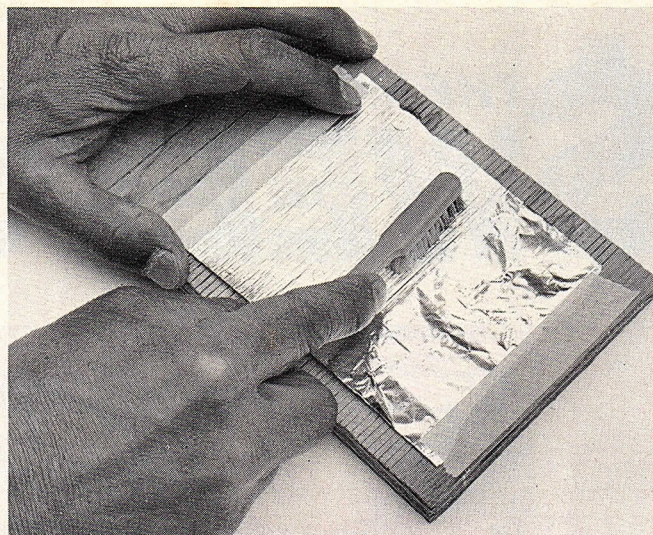
between the form boards. I also roughed up the plywood with a saw and the hobby knife. Construction companies used the cheapest of lumber, and the grain left its imprint.

This plywood base would be used over and over again, actually getting more character with each use. (I even used it as a form for bridge sides, culverts, and tunnel portals.) The other sides of the mold were made from scrap pieces of wood tacked in place, as shown in fig. 2.

Since you are custom fitting the abutments to the bridge, you can make a realistic ledge for the bridge to rest on, also shown in fig. 2.

Pour the plaster, mixed to about the consistency of pancake batter, directly into the mold. A few sharp raps against the workbench will settle it and send the bubbles to the surface. When the plaster has set up and is warm to the touch (about 20 minutes), remove the temporary sides of the mold. Then tap the abutment out of the mold. It is very important to make sure the plaster is warm before removing it from the mold; any sooner and it may crumble; much later and it will stick. Immediately, clean up the mold with a wire brush.

Now, for the wings. Lay a piece of aluminum foil over the plywood base and with a toothbrush rub until the foil takes the shape of the grooves. See fig. 3.



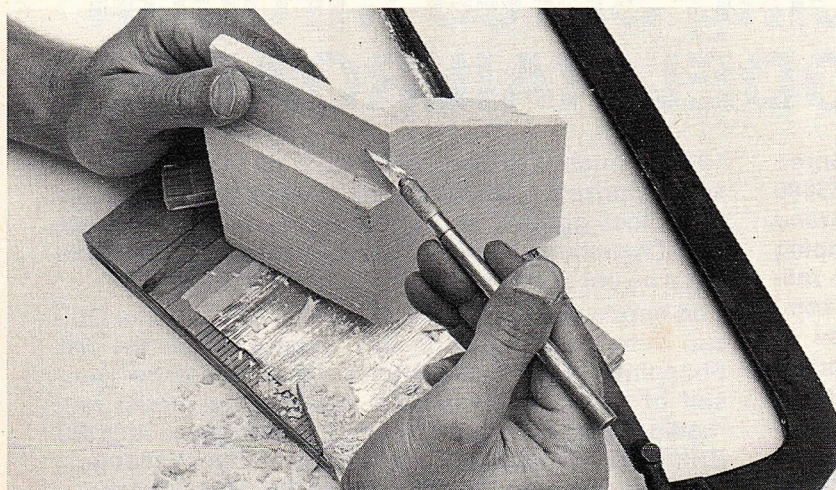
bridge to rest on. Wait until the plaster is warm before removing the abutment. **Fig. 3. Above.** In preparation for forming the wings, first tape a piece of aluminum foil in place on the plywood. Then rub a toothbrush across it to pick up the grooves of the plywood. The foil serves as a release agent for the plaster.

Now prop up the face of the abutment (fig. 4) at the desired angle and add scrap pieces of wood to complete the form for the wing. Pour the plaster, being sure it joins the face of the abutment. You may wish to pick up the face of the abutment a little to make sure plaster gets into this gap, but then press it down tightly against the plywood base. Any plaster that squeezes out in the process is easily trimmed off later.

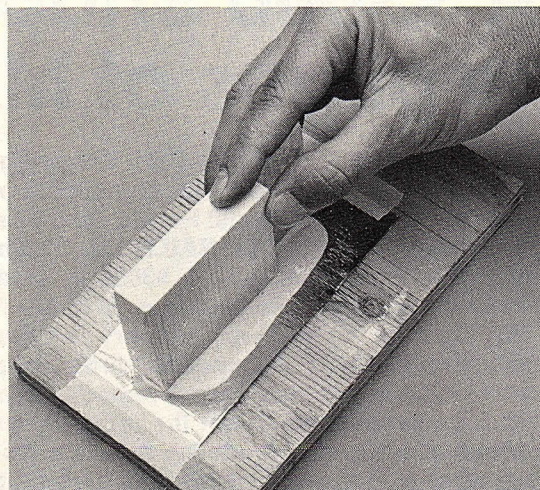
When the plaster has become warm to the touch, lift the abutment from the mold (the tinfoil makes this possible). Clean off any excess plaster from the abutment by scraping it away with a hobby knife.

Figure 6 demonstrates an interesting variation on this method: To make a four-sided concrete pier to go between the abutments, first cast the pier on the same piece of plywood, then "print" the other three sides on it by pressing them into shallow puddles of plaster poured on top of the foil. After the plaster has set up, simply trim off the excess and repeat the process on the other sides. The result is a pier that looks like it was poured into a four-sided mold.

When the plaster is dry (several days later), paint it with a mix of Floquil Concrete and Reefer White, add streaks of rust running down from the bridge shoes with pastel chalks, and if you are modeling Los Angeles, add the necessary graffiti. ☐



**Fig. 4. Left.** Tilt the abutment at the desired angle, and form the rest of the mold with scrap wood. Now fill it with plaster, being sure to force the plaster into the gap under the abutment where the faces meet. **Fig. 5. Above.** Any plaster that oozes out of the forms is easily trimmed off by scraping it with



the flat edge of a hobby knife. If the wing is too thick, it's easy to trim with a hacksaw. **Fig. 6. Above. Freestanding pier.** First cast the basic shape, then "print" the other three sides by holding them in very shallow puddles of plaster until it sets (about 20 minutes). Clean up excess with a hobby knife.



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